

Case study

Wastewater treatment and reuse - Nassau County, USA

Project	
Where (country/City):	Nassau County, New York, USA
When and contact length :	20-year public-private partnership with Nassau County since 2015
Goal: construction and or operations?	Maintenance and Operations
Scope: water/ Wastewater?	Wastewater Treatment/ Wastewater Collection
Scope: plant and or network?	3 sites: South Shore Water Reclamation Facility, Cedar Creek Water Reclamation Facility, Glen Cove Water Reclamation Facility Miles of network : ~ 3,000
People served:	1.3 million people served
Brief description of the project	
<p>In September 2014, the Nassau County government and Veolia entered into a public-private partnership.</p> <ul style="list-style-type: none">• The South Shore Water Reclamation Facility, located in southern Nassau County, handles flow from Nassau County Sewage Disposal Districts 1 and 2. The districts serve 530,000 residents and some commercial entities. Sewage Disposal Districts 1 and 2 were built between 1949 and 1962 and includes 22 pump stations. These districts comprise approximately 1,300 miles of local collection and trunk sewer lines. The South Shore Water Reclamation Facility, built in the late 1940s to treat 27 million gallons per day (MGD), has since been expanded to treat an average daily flow of 70 MGD.• The Cedar Creek Water Reclamation Facility serves Nassau County's Sewage Disposal District 3, treating the domestic, commercial and industrial wastewater generated by 600,000 residents, as well as by commercial and industrial clients. The district comprises approximately 1,500 miles of local collection and trunk sewer lines.• The Glen Cove Water Reclamation Facility has a permitted capacity of 5.5 MGD.	
Is this project unusual or different compared to others?	

At the time this was the largest public-private partnership in the US which drew unprecedented endorsement from local environmental groups, approved by both the 19-member Nassau County Legislature and the Nassau Interim Finance Authority.

- SOUTH SHORE - After the devastation wrought by Superstorm Sandy, more than \$830 million in federal and state aid was secured to repair and storm-harden the plant. In addition, Nassau County completed Biological Nutrient Reduction upgrades and constructed a protective earthen berm and wall around the plant.
- CEDAR CREEK- Constructed in 1974, it had undergone many major improvements: demolition of eight final sedimentation tanks and their replacement, three new digesters, two new sludge storage tanks, four new thickening tanks, construction of covers for the six-aeration tank, etc.
- GLEN COVE - In 2002, a Biological Nutrient Reduction retrofit was completed, including the addition of a new aeration blower, fine pore aeration diffusers, anoxic tanks, etc. In 2006, a new UV disinfection system was completed.

What have been the major outcomes or success so far?

- For decades, the fragile ecosystem of Long Island's Western Bays was crippled by lethal levels of nitrogen that fuelled massive algae blooms, choked the bays of oxygen and killed fish, shellfish and plant life. The Western Bays are returning to good health.
- In September 2016, the independent environmental coalition that had originally resisted the partnership issued a report card grading the Veolia's performance a B+, up from the F the County had received two years earlier.

Has "working in partnership" helped to make the project successful?

This 20 year public-private partnership between Veolia North America and Nassau County has been a boon for taxpayers and the environment alike. Under the contract, Veolia is responsible for the management and operation of the South Shore Water Reclamation Facility, the Cedar Creek Water Reclamation Facility, the Glen Cove Water Reclamation Facility and sewage collection system throughout the county. But Nassau County retains rate-setting power and oversees all capital spending at the plants. Veolia works under a fixed operation fee of \$57.4 million per year. This public-private partnership will save taxpayers more than \$230 million over the course of the 20-year contract term.

Contribution to the United Nations 2023 Conference themes

1) Which Interactive Dialogue theme does the project contribute to?

Water for Health: Access to safe drinking water, hygiene and sanitation

Yes, as the dominant feature of this project is sanitation and treatment of wastewater

<p>Water for Development: Valuing Water, Water-Energy-Food Nexus and Sustainable Economic and Urban Development</p>	<p>YES</p> <ul style="list-style-type: none"> At the water recycling facility at the Cedar Creek Water Reclamation Facility in Wantagh, water recycling is reusing treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processes, toilet flushing, and replenishing a groundwater basin (referred to as groundwater recharge). By reusing treated plant effluent, the Cedar Creek plant preserves up to 300 million gallons of groundwater each year.
<p>Water for Climate, Resilience and Environment: Source to Sea, Biodiversity, Climate, Resilience and Disaster Risk Reduction</p>	<p>YES</p> <ul style="list-style-type: none"> Work on protecting Long Island's vulnerable aquifer system, in reducing nitrogen pollution from sewage and in protecting existing groundwater Help restore waterways and rebuild/storm harden Bay Park plant which were severely damaged by Superstorm Sandy Veolia became vested in the Long Island community before a contract was even finalized. In 2013, working with Citizens Campaign for the Environment (CCE), Operation SPLASH and local businesses, Veolia established the Dispose My Meds Program. This initiative helps keep medications out of the water supply. The project is now part of the Drug Take Back Program in effect with local Police Departments that continue to accept unused medications to be safely discarded.
<p>What topic of the “Global Acceleration Framework” does the project contribute to?</p>	
<p>1. Optimized financing – did you improve targeting or utilize existing resources more efficiently, or mobilize additional funds</p>	<p>YES</p> <p>Nassau Maintenance Excellence Initiative Maintenance Management Operating System (MMOS) was implemented across all the facilities, including 2 WWTP & 57 lift stations</p> <ul style="list-style-type: none"> For the first 3-years of the Project, Veolia’s maintenance department constantly operated in reactive mode due to emergencies and critical equipment failures, which resulted in excessive overtime, excessive lost time due to lack of planning, as well as inefficiencies and poor productivity. The key innovative feature was to design a system that moves away from Reactive Maintenance methodology to Proactive

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	<p>Maintenance methodology. The initiative also focused on changing the mind-set of waiting for something to break and then fixing it to a methodology of planning then fixing it to a methodology of planning and scheduling work through interaction between the Operations department (who operates the equipment) and the Maintenance Department (who is responsible for repairing the equipment). The MMOS was tailored to each facility's needs by incorporating best practices from widely-used industry standards and methods while keeping contract compliance at the core.</p> <p>Value Creation</p> <ul style="list-style-type: none">• Reduce lost time and overtime• Annualized saving of \$230k
<p>2. Improved data and information – how did you use data and information to improve the service and increase accountability and transparency</p>	<p>YES</p> <p>Smart metering known as AMI or advanced metering infrastructure helps reduce water loss throughout our service territory in Nassau County. The AMI uses data to improve operational efficiencies and sustainability by effectively monitoring water usage and system efficiency, detecting malfunctions and recognizing irregularities.</p> <p>Implementation of Geographic Information System (GIS) Mapping, combined with sewer infrastructure data that has been collected via various inspection measures, has allowed Veolia to maintain a complete up-to-date portrait of Nassau's sewer system. Use of this technology has helped identify hot spots, as well as those that need immediate attention to help avoid blockages or need for emergency repair.</p>
<p>3. Capacity development - did you create new jobs or developed local people's skills and talents?</p>	<p>YES</p> <ol style="list-style-type: none">1. Veolia Academy (former Suez School) Create an internal program to train and support the employees in getting licenses<ol style="list-style-type: none">a. 28 Students enrolled in the 1st courseb. 33 Students enrolled in the 2nd course2. After formally taking over wastewater treatment facilities, Veolia immediately implemented strict safety guidelines, providing thousands of hours of operational training to ensure the health and safety of each and every employee. And we rigorously enforce transparent

	<p>reporting on plant operations and environmental metrics and provide open and real-time communication with all stakeholders. Such training not only provides for a safe and efficient work environment, it also fosters internal mobility, which enables individuals to increase their skills and experience.</p>
<p>4. Innovation – how have you used innovation and technologies to make the service better?</p>	<p>YES</p> <p>Sewer Line Rapid Assessment Tool (SL-RAT) uses acoustic technology to provide real-time blockage assessments. It is cost efficient and quick. If a problem is identified, additional technologies can be used to further identify the problem and fix it before a blockage or SSO occurs.</p>
<p>5. Governance – what have you done to maintain and strengthen governance around the project?</p>	<p>YES</p> <p>We have maintained and strengthened governance around the project through an overall establishment of checks and balances via the following: HachWIMS, Labcal, weekly MCRS, daily operation performance reviews, weekly calls with corporate for performance reviews of operations facilities, quarterly touch base with each area department (operations, engineering, maintenance, power house, etc.), weekly compliance meetings with the client, quarterly meetings with the environmental coalition, quarterly meetings/reports with local community groups</p>
<p>Has the project in any way supported the development and involvement of young people and/or supported gender equality, and if yes, how ?</p>	
<p>The Project has supported the development of young people through robust local recruitment and training and development through Veolia University. Additionally, we have strengthened our partnership with local Universities to recruit local talent for internships and fellowships. We are furthering our relationship with local school districts to provide tours and education about wastewater and its impact on the local environment.</p>	